REMARKS

The applicants have carefully considered the official action mailed on January 18, 2007, and the reference cited therein. In the official action, claim 1 was rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite, and claims 1-32 were rejected under 35 U.S.C. §102(e) as allegedly anticipated by Nair et al. (U.S. Patent No. 7,146,607).

By way of this response, the specification has been amended to correct a typographical error and claims 1 and 32 have been amended, leaving claims 1-32 pending in this application, of which claims 1, 19, 24, and 31 are independent. No new matter has been added. In view of the foregoing amendments and the following remarks, the applicants respectfully traverse the rejections. Favorable reconsideration is respectfully requested.

The applicants respectfully submit that claim 1, as amended, is compliant with the requirements of 35 U.S.C. §112, second paragraph. In particular, the applicants have amended claim 1 to recite, "determining cost values for at least one of the speculative parallel thread candidates." Accordingly, the applicants respectfully request withdrawal of the indefiniteness rejection under 35 U.S.C. §112, second paragraph.

Turning to the art rejections, the applicants respectfully submit that independent claim 1 is allowable over the art of record. Independent 1 is directed to a method of compiling a program that, *inter alia*, identifies a set of speculative parallel thread candidates, determines cost values for at least one of the speculative parallel thread candidates, and selects a set of speculative parallel threads from the set of speculative parallel thread candidates based on the cost values. The cited reference does not describe or suggest identifying a set of speculative parallel thread candidates,

determining cost values for at least one of the speculative parallel thread candidates, and selecting a set of speculative parallel threads from the set of speculative parallel thread candidates based on the cost values, as recited in claim 1.

Nair et al. describe, *inter alia*, optimizing one or more segments of an application in an environment with one or more processors to improve program execution efficiency. [*Nair et al.*, Abstract, 3:3-8]. Generally speaking, the optimization performed by Nair et al. includes employing an execution monitor running on a processor to monitor the execution of an application running on a separate processor. [*Nair et al.*, 3:19-22]. Execution characteristics are gathered and monitored by the execution monitor and used to optimize one or more segments of the application. [*Nair et al.*, 3:31-43]. While Nair et al. describe fragments of frequently executed instructions, such fragments (sequences) are not thread candidates, much less speculative parallel thread candidates. [*Nair et al.*, 7:31-32]. In particular, Nair et al. clearly describe the fragments as already selected based on a determination that the fragment might result in more efficient program execution. [*Nair et al.*, 7:34-39]. As a result, the fragments may not logically be deemed either speculative or candidates in view of the apparent certainty of fragment use described by Nair et al. Furthermore, any attempt to equate the fragments described by Nair et al. with a set of speculative parallel thread candidates, a suggestion with which the applicants do not agree, would render moot further limitations of claim 1. That is, the recited limitations of determining cost values for at least one of the speculative parallel thread candidates, and selecting a set of speculative parallel threads, would be superfluous language.

Additionally, even if the fragments described by Nair et al. could be construed as a set of speculative parallel thread candidates, also a proposition with which the

applicants do not agree, Nair et al. fail to describe or suggest a set of speculative parallel threads, much less any similar language to differentiate a set of speculative parallel thread candidates from a set of speculative parallel threads. To that end, Nair et al. can not, and do not describe identifying a set of speculative parallel thread candidates, determining cost values for at least one of the speculative parallel thread candidates, and selecting a set of speculative parallel threads from the set of speculative parallel thread candidates based on the cost values.

Moreover, while Nair et al. describe a profile monitor to monitor various characteristics, such as the number of times a particular path through a program was executed, such characteristic monitoring is neither a cost value, nor does Nair et al. describe or suggest determining cost values for at least one of the speculative parallel thread candidates, as recited in claim 1. [*Nair et al.*, 7:46-48]. Unlike a cost value, such as a misspeculation cost as recited in dependent claim 11, the characteristics monitored by Nair et al. are merely an indication of execution iterations, which trigger a fragment manager and/or a dynamic optimizer for code optimization. [*Nair et al.*, 7:48-53]. Accordingly, the threshold value employed by Nair et al. when reviewing the number of iterations of program execution is silent to a cost value, and determining cost values for at least one of the speculative parallel thread candidates. Thus, because Nair et al. fail to describe or suggest determining cost values, Nair et al. necessarily fail to select a set of speculative parallel threads from the set of speculative parallel thread candidates based on the cost values, as recited in claim 1.

The applicants respectfully request that the rejection of independent claim 1 be withdrawn for at least the foregoing reasons. Accordingly, the rejection of claims 2-18 dependent upon independent claim 1, must also be withdrawn for the foregoing reasons.

Independent claims 19, 24, and 31 are also allowable over the art of record for reasons similar to those set forth above in connection with independent claim 1. In particular, each of claims 19, 24, and 31 is directed to an article of manufacture storing machine readable instructions, an apparatus, or a system that, *inter alia*, identifies a set of speculative parallel thread candidates, determines a cost value for at least one of the speculative parallel thread candidates, and selects a set of speculative parallel threads from the set of speculative parallel thread candidates based on the cost values. None of the cited references describes or suggests identifying a set of speculative parallel thread candidates, determining a cost value for at least one of the speculative parallel thread candidates, and selecting a set of speculative parallel threads from the set of speculative parallel thread candidates based on the cost values, as recited in claims 19, 24, and 31, and claims dependent therefrom.

Thus, for at least the foregoing reasons, the applicants respectfully submit that all pending claims are now in condition for allowance. If there are any remaining issues in this application, the applicants urge the examiner to contact the undersigned attorney at the number listed below.

The Commissioner is authorized to charge any deficiency in the enclosed

check toward payment of any fee due for the filing of this paper to deposit account

number 50-2455.

Respectfully submitted,

_/Mark G. Hanley/_____
Mark G. Hanley
Reg. No. 44,736
Attorney for Applicants
150 S. Wacker Drive, Suite 2100
Chicago, IL 60606
(312) 580-1020

April 17, 2007